

I/WE CLAIM:

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1. A method for aseptically bottling aseptically sterilized foodstuffs comprising the steps of:
 - 3 providing a plurality of bottles;
 - 4 aseptically disinfecting the plurality of bottles;
 - 5 aseptically filling the aseptically disinfected plurality of
 - 6 bottles with the aseptically sterilized foodstuffs; and
 - 7 filling the aseptically disinfected plurality of bottles at a
 - 8 rate greater than 100 bottles per minute.
1. The method according to claim 1, wherein the plurality of
- 2 bottles are made from a glass.
1. The method according to claim 1, wherein the plurality of
- 2 bottles are made from a plastic.
1. 4. The method according to claim 3, wherein the plastic is
- 2 polyethylene terephthalate.
1. 5. The method according to claim 3, wherein the plastic is high
- 2 density polyethylene.
1. 6. The method according to claim 1, further including capping the
- 2 bottle with an aseptically disinfected lid.

1 7. The method according to claim 1, wherein the plurality of
2 bottles has an opening size to height ratio of less than one.

1 8. The method according to claim 1, further including
2 disinfecting the interior of the plurality of bottles with a hot
3 hydrogen peroxide spray.

1 9. The method according to claim 8, wherein disinfecting the
2 interior of the plurality of bottles includes the application of
3 the hot hydrogen peroxide spray for about 1 second and the
4 activation and removal of the hot hydrogen peroxide using hot
5 aseptically sterilized air for about 24 seconds.

1 10. The method according to claim 1, further including a feedback
2 control system for maintaining aseptic bottling conditions.

1 11. The method according to claim 1, wherein disinfecting is
2 provided by hydrogen peroxide.

1 12. The method according to claim 1, wherein disinfecting is
2 provided by oxonia.

1 13. The method according to claim 1, wherein disinfecting the
2 outside surfaces of the plurality of bottles is provided by
3 hydrogen peroxide.

1 14. The method according to claim 13, wherein disinfecting the
2 outside surface of the plurality of bottles includes about 1 second
3 for the application of the hot hydrogen peroxide spray and about 24
4 seconds for the activation and removal of the hot hydrogen peroxide
5 using hot aseptically sterilized air.

1 15. The method according to claim 1, wherein disinfecting the
2 outside surfaces of the plurality of bottles is provided by oxonia.

10 16. The method according to claim 1, wherein the step of filling
11 the aseptically disinfected bottling further comprises: filling the
12 aseptically disinfected bottling at a rate greater than 360 bottles
13 per minute.

14 17. The method according to claim 1, wherein the aseptically
15 sterilized foodstuffs are sterilized to a level producing at least
16 a 12 log reduction in *Clostridium botulinum*.

17 18. The method according to claim 1, wherein the aseptically
18 disinfected plurality of bottles are sterilized to a level
19 producing at least a 6 log reduction in spore organisms.

20 19. The method according to claim 8, wherein the residual level of
21 hydrogen peroxide is less than .5ppm.

1 20. A method for automatically aseptically bottling aseptically
2 sterilized foodstuffs comprising the steps of:
3 providing a plurality of bottles;
4 aseptically disinfecting the bottles at a rate greater than
5 100 bottles per minute; and
6 aseptically filling the bottles with aseptically sterilized
7 foodstuffs.

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1 21. A device for aseptically bottling aseptically sterilized
2 foodstuffs comprising:

means for providing a plurality of bottles;

means for aseptically disinfecting the plurality of bottles;

means for aseptically filling the aseptically disinfected

6 plurality of bottles with the aseptically sterilized foodstuffs;

7 and

means for filling the aseptically disinfected plurality of

9 bottles at a rate greater than 100 bottles per minute.

1 22. A device for automatically aseptically bottling aseptically
2 sterilized foodstuffs comprising:
3 means for providing a plurality of bottles;
4 means for aseptically disinfecting the bottles at a rate
5 greater than 100 bottles per minute; and
6 means for aseptically filling the bottles with aseptically
7 sterilized foodstuffs.

1 23. An aseptic processing apparatus for aseptically bottling
2 aseptically sterilized foodstuffs comprising:

3 a sterile tunnel for surrounding a plurality of bottles with
4 pressurized sterile air;

5 a conveying apparatus for moving the plurality of bottles
6 through the sterile tunnel;

7 a bottle infeed, sterilization and conveying apparatus for
8 sterilizing an exterior surface of each bottle and for feeding the
9 sterilized bottles into the sterile tunnel;

10 an interior bottle sterilization apparatus for applying a
11 sterilant to an interior surface of each bottle;

12 an activation and drying apparatus for activating and removing
13 the sterilant from the interior surface of each bottle;

14 a product filler apparatus for filling the aseptically
15 sterilized plurality of bottles with the aseptically sterilized
16 foodstuffs;

17 a lidding apparatus for applying a sterilized lid to each
18 bottle; and

19 a bottle discharge apparatus for removing the bottles from the
20 sterile tunnel.

1 24. The aseptic processing apparatus according to claim 23,
2 wherein the sterile tunnel further includes a plurality of
3 partitions forming a plurality of sterilant concentration zones.

1 25. The aseptic processing apparatus according to claim 23,
2 wherein each bottle has an opening size to height ratio of less
3 than one.

1 26. The aseptic processing apparatus according to claim 23,
2 wherein the sterilant is hydrogen peroxide.

1 27. The aseptic processing apparatus according to claim 23,
2 wherein the sterilant is oxonia.

1 28. The aseptic processing apparatus according to claim 23,
2 further including a lid sterilization apparatus.

1 29. The aseptic processing apparatus according to claim 23,
2 wherein the plurality of bottles are made from plastic.

1 30. The aseptic processing apparatus according to claim 29,
2 wherein the plastic is polyethylene terephthalate.

1 31. The aseptic processing apparatus according to claim 29,
2 wherein the plastic is high density polyethylene.

1 32. The aseptic processing apparatus according to claim 23,
2 further including a feedback control system for maintaining aseptic
3 bottling conditions.

1 33. The aseptic processing apparatus according to claim 23,
2 wherein the product filling apparatus fills the plurality of
3 bottles at a rate greater than 360 bottles per minute.

1 34. The aseptic processing apparatus according to claim 23,
2 wherein the sterile tunnel encloses the interior bottle
3 sterilization apparatus, the activation and drying apparatus, the
4 product filler apparatus, and the lidding apparatus.

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